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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,589

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Eric Fassiau

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EXAMINER

TISCHLER, FRANCES

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/564,589

**Applicant(s)**

FASSIAU ET AL.

**Examiner**

FRANCES TISCHLER

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-20 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-20 and 25 is/are allowed.
- 6) ☒ Claim(s) 26, 27 is/are rejected.
- 7) ☒ Claim(s) 19, 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/18/09 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 11 claims that the dispersant is polyvinyl alcohol. However, dependent claims 19 and 20 improperly claim dispersants selected from cellulose ethers and polyvinyl alcohol.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

**Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenhende et al (US 2003/0119925).**

Applicant claims a process for recovering a polymer in solution in a solvent by precipitating it with a non-solvent, wherein the precipitating medium comprises two dispersants: dispersant (I) has a greater affinity for the non-solvent and dispersant (II) has a greater affinity for the solvent.

Vandenhende discloses (abstract, [0025], claims 1 and 2) the process of recycling a plastic dissolved in a solvent and precipitated out with a non-solvent in the presence of a dispersant.

Vandenhende teaches one dispersant but fails to teach two dispersants. However,

(1) Vandenhende discloses ([0025]) the use of various dispersing agents, including polyvinyl alcohol, bentonite, gelatin, esters or ethers of cellulose, water-soluble (co)polymers, etc. Case law holds that it is prima facie obvious to use a combination of dispersants with reasonable expectations of cumulative results since the dispersants disclosed by Vandenhende are used for the same purpose of forming particles of small diameter during the recovery of the polymer. And it would have been obvious to one of ordinary skill in the art in the instant case to have used any two dispersants in combination such that one has a greater affinity to the solvent and the other has a greater affinity to the non-solvent.

(2) polyvinyl alcohol inherently contains a wide distribution of segments that encompass various degrees of hydrolysis, i.e., some areas may contain more acetate groups and some may contain more hydroxyl groups. Components with more hydroxyl groups will inherently have a greater affinity to the non-solvent and the components with less hydroxyl groups will have an inherently greater affinity to the solvent. Thus, the dispersant used by Vandenhende corresponds to the two dispersants used by applicant since both function in the same manner of having a greater affinity to the solvent or to the non-solvent. Additionally, one of ordinary skill in the art would have known to choose polyvinyl alcohols with more or less hydroxyl groups depending on the intended use while working with the solvent or with the non-solvent, such as obtaining small diameter particles, as disclosed by Vandenhende.

Applicant claims that dispersant (I) is added before phase inversion and dispersant (II) is added after phase inversion.

Vandenhende discloses ([0025]) adding the dispersing agent to decrease the size of the particles and the dispersing agent can be added from the beginning of the dissolution of the plastic or, alternatively, the dispersing agent may be added at the same time as the non-solvent, corresponding to applicant's claim of adding the dispersant before or after phase inversion. It would have been obvious to one of ordinary skill in the art to have optimized the variables of adding the dispersants at certain times and of certain amounts depending on desired results, such as the degree

of precipitation, costs of chemicals, physical appearance of the precipitate, size of particles, etc.

Applicant claims the non-solvent is added gradually which causes a phase separation and then a phase inversion, the amount of which is initially less than required for phase inversion and is subsequently introduced at least partially in vapor form.

Similarly, Vandenhende discloses ([0026], claim 3) the gradual addition of the non-solvent; the phase inversion is generally observed, that is to say the precipitation medium changes from a dispersion of the non-solvent to a dispersion of the solvent in the non-solvent. Vandenhende fails to teach Q and Q' quantities. Referring to said Q and Q', Vandenhende's disclosure ([0026]) of the gradual addition of non-solvent means that at a point in time the non-solvent will hit a Q' value and at another point in time it will hit the Q value. Vandenhende also discloses ([0024], [0041]) injecting the non-solvent in both liquid and gaseous form for a faster precipitation of the plastic and injection of steam to permit for easier solvent removal. It is prima facie obvious to introduce the vapor at some point in time during the gradual introduction of the non-solvent that may hit the desired point claimed by applicant. It is noted that Q and Q' depend on the nature of solvent, non-solvent and polymer to be precipitated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to achieve the claimed Q' and Q values through routine optimization and thereby obtaining the invention.

***Allowable Subject Matter***

Claims 11 – 18 and 25 are allowable over the closest prior art of Vandenhende et al (US 2003/0119925) who teaches a process of recovering a polymer in solution in a solvent by precipitating it with a non-solvent by adding a dispersant. No prior art teaches or fairly suggests the process of recovering a polymer in solution in a solvent by precipitating it with a non-solvent in the presence of two dispersants, one with a greater affinity to the non-solvent with a degree of hydrolysis of 65 – 90% and one with a greater affinity to the solvent with a degree of hydrolysis of less than or equal to 60%.

***Response to Arguments***

Applicant's arguments filed 6/16/09 have been fully considered but they are not persuasive.

Applicant submits that the ASG/d ratio of examples 6, 7 and 8 are higher than the comparative examples R1 and R2 of the instant application.

Applicant's argument is not convincing. Examples 6, 7 and 8 use 0.6 wt% of dispersant while R1 and R2 use 0.3 wt%. The difference in ASG/d may be simply due to a higher amount of dispersant, and not due to the use of a dispersant containing two different degree of hydrolysis. Additionally, as discussed above, (1) Vandenhende discloses various dispersants, which can be combined with reasonable expectations of cumulative results for the same purpose of forming particles of small diameter during the recovery of the polymer, (2) Vandenhende uses the same polyvinyl alcohol dispersant as Applicant which inherently contains various degrees of hydrolysis within it,

corresponding to Applicant's dispersant with higher and lower degree of hydrolysis, given that the claim does not specify the amount of hydrolysis found in each dispersant.

Applicant submits that the ASG/d ratios of examples 6, 7 and 8, which add the 40%DH dispersant before and after phase inversion, are higher than the ASG/d ratio of example 5, which only adds the 40% DH dispersant before phase inversion.

Applicant's argument is not convincing. As discussed above, Vandenhende also discloses that the dispersant can be added before or after phase inversion. It is also noted that examples 7 and 8 don't seem to follow a pattern when compared to examples 5 and 6.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCES TISCHLER whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 7:30AM - 5:00 PM; off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/  
Primary Examiner, Art Unit 1796

Frances Tischler  
Examiner  
Art Unit 1796

/FT/